Artificial Lift Services

SharkNET™ Self Cleaning Solids Filter System

IN COMBINATION WITH A WhaleShark™ SEPARATOR USE IN WELLS TO:

- Control solids entering/damaging pump
- Avoid solids accumulating above pump
- Maximize pump run-life and reliability

VALUE FEATURES

- Patent pending design; first of its kind downhole self-cleaning filter system that avoids filter plugging risks
- A simple, highly effective, engineered design for controlling solids over a broad solids size range (including fines)
- Integrates as a system with a sucker rod pump, using a novel "reverse pulse jet cleaning" back flushing standing valve (BFSV), that continuously controls filter plugging risks each pump stroke
- Filter is engineered to hold and release solids; solids do not get retained in filter
- Contains solids into standard mud joints
- Filter is open-ended for allowing bypass in the event of filter plugging

The **SharkNET™ Self Cleaning Solids Filter System** is a high-performance downhole solids separation system that offers the greatest possible long-term pump solids protection.

To effectively separate solids over a broad size range, filtering is required. Cyclonic and gravity-based solids separators are not able to efficiently separate finer particles such as 100 mesh frac sand.

The risk with solids filtering is filter plugging. To resolve this risk, the SharkNET™ was developed to bring successful surface facility self-cleaning filter system technology downhole.

Continuous filter cleaning is achieved with a specially designed rod pump with a standing valve that back flushes. Delaying the closing of a standing valve using an Extension Tube between the flow-by cage and seat creates a reverse pressure pulse wave and a back flush volume that dislodges solids from the filter and settles them downward into mud joints during the pump's downstroke.

The system continuously cleans the filter without having to stop or interrupting pumping operations.

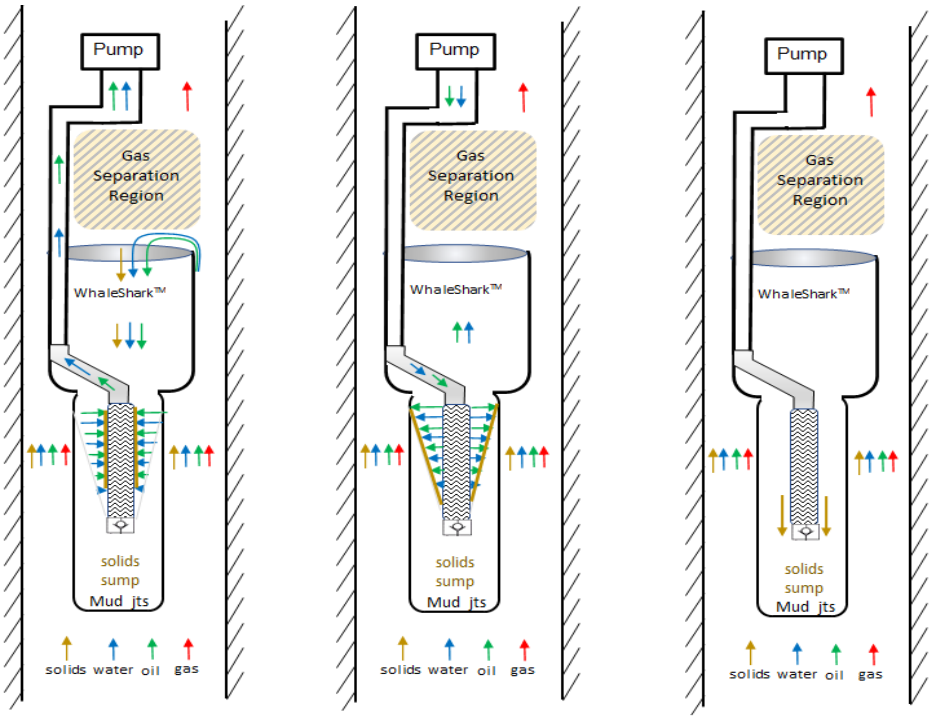
Filter Screen Specifications

Series Model Name	16ss	18ss
Outside Diameter, in [mm]	1.6 [40.6]	1.8 [45.7]
Length per Section, feet [m]	5.0 [1.52]	5.0 [1.52]
Connections, box and pin, in [mm]	1.0 [25.4] NPT	1.25 [31.75] NPT
Make up Torque ft.lbs [N.m]	112 [152]	154 [208]
Filter Rating, mesh [micron]	120 [120]	120 [120]
Filter Material	316 SS	316 SS

Back Flushing Standing Valve (BFSV) Specifications

Size, in [mm]	1.75 [44.5]	2.25 [57.2]
Cage Body Material	Monel / SS	Monel / SS
Insert Cage Type	Q2 Flow, Turbine	Q2 Flow, Turbine
Seat Material	tungsten carbide	tungsten carbide
Ball Material	titanium carbide	titanium carbide
Ball Size (API), in [mm]	1.125 [28.6]	1.375 [34.9]
Extension Tube Material	Monel / SS	Monel / SS
Extension Tube Clearance, thou	45	45
Extension Tube Length, in [mm]	2.0 [50.8]	2.0 [50.8]

SharkNET™ Self Cleaning Filter Process Sequence



Pump Upstroke
(drawing fluid through filter and filtering out solids on filter wall)

Start of Pump Downstroke
(reverse flow pulse at filter as pump standing valve closes, removes solids from screen face)

Pump Downstroke
(standing valve closed and no flow, solids gravity settle into mud joints)